

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1-9 (Cancelled)

10. (Currently Amended) A data transmission system for serial asynchronous data transmission between a first unit and a second unit, the data transmission system comprising:

- a first circuit part associated with the first unit, the first circuit part including:
 - a first transmitter circuit part connected to a first transmitter terminal of the first unit;
 - a first receiver circuit part connected to a first receiver terminal of the first unit;
 - a first terminal for a data transmission line; and
 - a first terminal for a reference potential line;
- a second circuit part associated with the second unit, the second circuit part including:
 - a second transmitter circuit part connected to a second transmitter terminal of the second unit;
 - a second receiver circuit part connected to a second receiver terminal of the second unit;
 - a second terminal for the data transmission line; and
 - a second terminal for the reference potential line;

the second circuit part being interconnectable with the first circuit part via the data transmission line such that the data transmission line directly connects the first transmitter circuit part, first receiver circuit part, second transmitter circuit part, and second receiver circuit part for bidirectional data transmission and via the reference potential line; and

- a current source configured for feeding a current into the data transmission line so that:
 - a first signal state of the first receiver terminal is capable of being changed as a function of a second signal state of the second transmitter terminal; and

a third signal state of the second receiver terminal is capable of being changed as a function of a fourth signal state of the first transmitter terminal.

11. (Previously Presented) The data transmission system as recited in claim 10 wherein at least the first unit includes a programmable small control system including:

- a processing unit;
- a display unit;
- an operating control unit;
- a plurality of signal inputs; and
- a plurality of signal outputs;

the processing unit, the display unit, the operating control unit, the plurality of signal inputs and the plurality of signal outputs being disposed in a common housing.

12. (Previously Presented) The data transmission system as recited in claim 11 wherein the processing unit includes a microcontroller.

13. (Previously Presented) The data transmission system as recited in claim 10 wherein:

the first unit is a separate module configured for connecting to a programmable small control system, the programmable small control system including a processing unit, a display unit, an operating control unit, a plurality of signal inputs and a plurality of signal outputs, the processing unit, the display unit, the operating control unit, the plurality of signal inputs and the plurality of signal outputs being disposed in a common housing; and

the second unit is a separate module configured for connecting a device which expands a function of the first unit.

14. (Previously Presented) The data transmission system as recited in claim 13 wherein the processing unit includes a microcontroller.

15. (Previously Presented) The data transmission system as recited in claim 10 wherein the current source is integrated in the second unit.

16. (Previously Presented) The data transmission system as recited in claim 10 wherein each of the first and second transmitter and receiver parts include at least one respective semiconductor switch.

17. (Previously Presented) The data transmission system as recited in claim 10 wherein the first transmitter part and the first receiver part are configured so as to provide a galvanic separation between the first transmitter terminal and the first receiver terminal and between the first terminal for the data transmission line and the first terminal for the reference potential line.

18. (Previously Presented) The data transmission system as recited in claim 10 wherein the current source includes a constant current source.

19. (Previously Presented) The data transmission system as recited in claim 18 wherein the current source includes a p-n-p transistor, the p-n-p transistor being connected to a supply potential via a first ohmic resistor on an emitter side of the p-n-p transistor, to the supply potential via a Zener diode on a base side of the p-n-p transistor, to the reference potential via a second ohmic resistor on the base side of the p-n-p transistor, and to the data transmission line via a collector terminal of the p-n-p transistor.

20. (Previously Presented) The data transmission system as recited in claim 10 wherein the current source includes an ohmic resistor connected to a supply potential with a first end thereof and to the data transmission line with a second end thereof.

21. (Previously Presented) A data transmission system for serial asynchronous data transmission between a first unit and a second unit, the data transmission system comprising:
a first circuit part associated with the first unit, the first circuit part including:

- a first transmitter circuit part including a first transmitter terminal;
- a first receiver circuit part including a first receiver terminal;
- a first terminal for a data transmission line; and
- a first terminal for a reference potential line;

the first transmitter part and the first receiver part being configured so as to provide a galvanic separation between the first transmitter terminal and the first receiver terminal and between the first terminal for the data transmission line and the first terminal for the reference potential line;

- a second circuit part associated with the second unit, the second circuit part including:
 - a second transmitter circuit part including a second transmitter terminal;
 - a second receiver circuit part including a second receiver terminal;
 - a second terminal for the data transmission line; and
 - a second terminal for the reference potential line;

the second circuit part being interconnectable with the first circuit part via the data transmission line for bidirectional data transmission and via the reference potential line; and

- a current source configured for feeding a current into the data transmission line so that:
 - a first signal state of the first receiver terminal is capable of being changed as a function of a second signal state of the second transmitter terminal; and
 - a third signal state of the second receiver terminal is capable of being changed as a function of a fourth signal state of the first transmitter terminal.

22. (New) A data transmission system for serial asynchronous data transmission between a first unit and a second unit, the data transmission system comprising:

- a first circuit part associated with the first unit, the first circuit part including:
 - a first transmitter circuit part including a first transmitter terminal;
 - a first receiver circuit part including a first receiver terminal;
 - a first terminal for a data transmission line; and
 - a first terminal for a reference potential line;
- a second circuit part associated with the second unit, the second circuit part including:

a second transmitter circuit part including a second transmitter terminal;

a second receiver circuit part including a second receiver terminal;

a second terminal for the data transmission line; and

a second terminal for the reference potential line;

the second circuit part being interconnectable with the first circuit part via the data transmission line for bidirectional data transmission and via the reference potential line; and

a current source comprising a p-n-p transistor, the p-n-p transistor being connected to a supply potential via a first ohmic resistor on an emitter side of the p-n-p transistor, to the supply potential via a Zener diode on a base side of the p-n-p transistor, to the reference potential via a second ohmic resistor on the base side of the p-n-p transistor, and to the data transmission line via a collector terminal of the p-n-p transistor, the current source being configured for feeding a current into the data transmission line so that:

a first signal state of the first receiver terminal is capable of being changed as a function of a second signal state of the second transmitter terminal; and

a third signal state of the second receiver terminal is capable of being changed as a function of a fourth signal state of the first transmitter terminal.

23. (New) The data transmission system as recited in claim 10 wherein the current source is a power supply to the first transmitter circuit and first receiver circuit of the first circuit part.